

EN200

LAB #1 PRELAB

HYDROLAB TOUR & FASTSHIP DEMONSTRATION

Instructions

The lab is completed in 2 parts.

Part 1: Hydrolab Tour.

One part of the lab involves a tour of the hydrolab to familiarize you with the lab space where you will be performing many of the EN200 labs. The tour will be conducted by a member of the Hydrolab Staff/your instructor and begins at the northern entrance to the hydrolab in Rickover Hall.

Part 2: FastShip Demonstration.

The other part of the lab involves a 50 minute 'hands on' demonstration of FastShip, a computer package enabling the fast production of ship lines plans and hydrostatic data. This is held in R109.

The order in which the 2 parts are completed will depend upon your section, your instructor will give you this information.

There is no submission from this lab.

Student Information

Name: _____

Section: _____

Date: _____

Aim

Part 1: Hydrolab Tour

- Familiarize students with the layout of the Hydrolab.
- Familiarize students with some of the equipment they will be using in future EN200 labs.
- Brief students on the Health and Safety dangers within the Hydrolab.

Part 2: FastShip Demonstration

- Reinforce the students understanding of the 3 orthogonal views used to describe a ship's hull; the body plan, half breadth plan and shear plan.
- Familiarize students with the speed at which a ship's lines plan can be created using a Computer Aided Drafting (CAD) system.
- Introduce students to the ease at which hydrostatic data can be obtained from a computer generated ship's lines plan.
- Introduce students to additional drawing features available on a CAD system.

FastShip Demonstration Instructions

Loading the Program:

1. If the workstations are not on, turn them on.
2. Turn on the monitors.
3. Double click the **FastShip HSS** Icon.
4. FastShip will start after a while with the hss.srf file loaded automatically.
5. If already logged in to FASTSHIP, select the **hss.srf** file in **MENU3**.

Outline of Class: (50 minutes)

1. Students gather around instructor's computer for a short 10 minute demonstration and introduction of what will be done.
2. Students sit down and follow along with instructor. First overhead shows the profile of the ship. Most commands are on the bottom of the screen. These have been customized for this lab and are actually user defined buttons. These buttons have been designed to work with the click of the left mouse button, no double clicking is necessary.
3. Click on **movept** to move first bottom right point. Click on the point to grab it, move the point, and then click again to lock it in the new position.
4. Move all 15 points on the profile mesh to match the profile shown on the overhead slide.
5. Click on **MENU2**.
6. Click on net for the net points, **surf** for the actual surface, and **netsurf** for both.
7. Click back onto **net**.
8. Click on **body** to change to the body plan view.
9. Look at the body plan overhead on the screen.
10. The "primary editing plane" will automatically change from BUTTOCK (X-Z plane) to STATION (Y-Z plane), and the "secondary editing plane" will change from nothing to WL (X-Y plane). The WL plane intersects with the STATION plane and allows movement in only the Y direction. (This is good to start with.) To move in the Z direction, click on WL until it is blank.
11. Click on the + to change it to a - . Click the word **YAW** once to change the YAW view from 90 degrees to 88 degrees.
12. Look at the second body plan overhead on the screen to help see which points to stretch transversely.
13. Click on **MENU1**.
14. Click on **movept**. Click on top left point (A), move it left. Note: the points along the right are at the bow and do not get moved, and the points along the bottom represent the keel and they do not get moved.
15. Move points B thru H in order.

16. To change the yaw back to 90 degrees, click on the “-” to change back to a “+” and then click **YAW** once.
17. Click on **mirror** to mirror to the other side (to get the whole boat). If you need to edit the surface, click on **no mir** first.
18. Click on **HEEL**, **PITCH** and **YAW** to change views. Click on **MENU2** and then **fit** to make the view fit the screen.
19. Click on **MENU1** and then **volume** (make sure that **mirror** is on). You can then scroll through the hydrostatic characteristics of the hull you have drawn.
20. To show a lines plan, click **no mir** - this will delete the mirror, click on **MENU2** and then click on **curves** - this will put the perimeters and sections on.
21. To show a solid surface, click on **solid**.
22. If there is still time, there are other surfaces that can be read in **MENU3** and examined.

Correcting Mistakes

1. If you move points that shouldn't be moved along the bottom you can fix them by clicking on **fixedge**, which move those points to $Y=0$, or click on **fixY**, which moves all points to $Y=0$.
2. Additionally, there are files in **MENU3** that can be read in if you want to start at different steps in this exercise.

hss.srf is the original 15' by 2' rectangle.

prof.srf is the modified profile view.

bod.srf is the finished boat.

To read one of these, click on the desired button and answer “y” to the question, “Do you want to abandon this surface?”

Resetting for the Next Class

1. If there is another section coming in, load the **hss.srf** file from **MENU3**. Otherwise, click on **File** in the top left-hand corner and then select **exit**, or click the “x” in the top right-hand corner.